Remarks/Arguments

Claims 1-10, 12-20 and 23-25 remain in this application.

Claims 11, 21 and 22 have been cancelled by the above amendments.

The examiner has objected to the drawings as failing to comply with 37 CFR 1.84(p)(5).

The examiner has rejected claims 8-10 under 35 U.S.C. 101.

The examiner has rejected claims 1-7 under 35 U.S.C. 112, second paragraph.

The examiner has rejected claims 15, 21 and 22 under 35 U.S.C. 102(e) as being anticipated by *Zimmer, et al.* (U.S. Patent Application Publication No. 2004/0103272).

The examiner has rejected claim 16 under U.S.C. 102(e) as being anticipated by *Miller, et al.* (U.S. Patent Application Publication No. 2004/0064686).

The examiner has rejected claims 1-4, 8 and 11-13 under U.S.C. 103(a) as being unpatentable over *Schelling* (U.S. Patent Application Publication No. 2002/0083369) in view of *Bernhard, et al.* (U.S. Patent Application Publication No. 2003/0233534).

The examiner has rejected claims 5, 9 and 10 under U.S.C. 103(a) as being unpatentable over the combination of *Schelling* and *Bernhard, et al.* and further in view of *Zimmer, et al.*

The examiner has rejected claim 6 under U.S.C. 103(a) as being unpatentable over the combination of *Schelling* and *Bernhard, et al.* and further in view of *Johnson, et al.* (U.S. Patent Application Publication No. 2005/0193166).

The examiner has rejected claims 18, 19 and 25 under U.S.C. 103(a) as being unpatentable over *Zimmer, et al.* in view of *Bernhard, et al.*

The examiner has objected to claims 17, 20, 23 and 24 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The examiner has allowed claim 14.

The examiner has indicated that claim 7 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112, second paragraph, and to include all of the limitations of the base claim and any intervening claims.

In view of the above amendments and these remarks, reconsideration of the above noted rejections and objections is respectfully requested.

Objections to the Drawings:

Applicant respectfully submits that the attached replacement sheet containing Fig. 1 cures the grounds for the objections to the drawings. In particular, the reference number 120 in Fig. 1 has been changed to 119, since it is shown in the specification (see [0014]) that the "registers" erroneously labeled as 120 in Fig. 1 are referred to as element 119.

Rejections under 35 USC 101:

Applicant respectfully traverses the rejection of **claims 8-10**, as amended, under 35 U.S.C. 101. The amendments to **claim 8** merely incorporate limitations from canceled claim 11, which was not rejected under 35 U.S.C. 101. Therefore, Applicant respectfully submits that this amendment cures the grounds for the rejection of **claim 8** under 35 U.S.C. 101. Additionally, since **claims 9 and 10** depend directly or indirectly from amended claim 8, Applicant respectfully submits that the amendment to claim 8 cures the grounds for the rejection of these claims under 35 U.S.C. 101 as well.

Rejections under 35 USC 112, second paragraph:

Applicant respectfully traverses the rejection of **claims 1-7** under 35 U.S.C. 112, second paragraph. Claim 1 has been amended above to more clearly distinguish which part of the method is performed upon starting the initialization and which part is performed upon restarting the initialization. (The amendments to claim 1 are supported in the specification at [0022] and [0023].) Applicant respectfully submits that this amendments to **claim 1** cure the grounds for the rejection of this claim under 35 U.S.C. 112, second paragraph. Additionally, since **claims 2-7** depend either directly or indirectly from amended claim 1, Applicant respectfully

submits that the amendments to claim 1 cure the grounds for the rejection of these claims under 35 U.S.C. 112, second paragraph, as well.

Rejections under 35 USC 102(e):

Applicant respectfully traverses the rejection of **claims 15, 21 and 22** under 35 U.S.C. 102(e) as being anticipated by *Zimmer, et al.* Rejected **claims 21 and 22** have been cancelled by the above amendments. **Claim 15** recites (among other limitations):

> under control of the stackless instructions the computer system initializes the **first computer memory** for **use by** the **memory controller**; and
>
> under control of the stack-based instructions the computer system assembles configuration data which **enables the memory controller to use the first and second computer memory**.

Applicant respectfully submits that *Zimmer, et al.* does not teach or suggest these limitations.

The office action equates the cache 14 and the interface 22 of *Zimmer, et al.* with the claimed first computer memory and the memory controller, respectively. However, *Zimmer, et al.* does not teach or suggest that the interface 22 **uses** the cache 14. Instead, *Zimmer, et al.* appears to disclose that the RAM 14 is **used by** the execution core 12 of the processor 10, since the RAM 14 is the processor's own cache (see [0010]). Additionally, *Zimmer, et al.* appears to disclose that the interface 22 merely couples the processor 10 to the bus 24 and the ROM 20 (see [0011]) and to the system memory 25 (see Fig. 2), rather than disclosing that the interface 22 **uses** the RAM 14. Applicant respectfully submits, therefore, that independent **claim 15** is not anticipated by, is not obvious in view of, and is patentable over *Zimmer, et al.* at least because the reference does not teach or fairly suggest 1) a memory controller that is initialized to **use a first computer memory** under control of stackless instructions and 2) configuration data, assembled under control of stack-based instructions, which enables the memory controller to **use both first and second computer memory**.

Applicant respectfully traverses the rejection of **claim** 16 under U.S.C. 102(e) as being anticipated by *Miller, et al.* **Claim 16** recites (among other limitations):

> firmware, under control of which the computer system:
> initializes the memory controller to use **only the first memory module**;
> **using only the first memory module**, generates configuration data that enables the memory controller **to use the first and second memory modules**...

Applicant respectfully submits that *Miller, et al.* does not teach or suggest these limitations. (Amendments to claim 16 are supported in the specification at [0018] and [0019].)

Miller, et al. appears to disclose that **all of the memory modules** of its system memory 106 are initialized **all at once** (see [0015], [0034] and [0036] and steps 406 and 408). Therefore, *Miller, et al.* does not teach or suggest initialization for **only one** memory module and then **using only that memory module** for initialization for two memory modules, as recited by claim 16. Applicant respectfully submits, therefore, that independent **claim 16** is not anticipated by, is not obvious in view of, and is patentable over *Miller, et al.* at least because the reference does not teach or fairly suggest initializing a memory controller to use **only one memory module** and then **using only that one memory module** to generate data to enable the memory controller to use that and another memory module.

Rejections under 35 USC 103(a):

Applicant respectfully traverses the rejection of **claims 1-4, 8 and 11-13** under U.S.C. 103(a) as being unpatentable over *Schelling* in view of *Bernhard, et al.* **Claims 1 and 8** are independent. **Claim 11** has been canceled by the above amendments. **Claims 2-4** depend from claim 1, and **claims 12 and 13** depend from independent claim 8. **Claim 1** recites (among other limitations):

> upon restarting computer memory initialization:
> copying the saved configuration data to initialize the portion of memory; and
> **using the portion of memory** to execute instructions to initialize **a remainder of memory**.

Additionally, independent **Claim 8** recites (among other limitations):

> upon determining that the reset is firmware initiated, copying saved configuration data to **initialize a portion of the computer memory**, and **using the portion** of the computer memory to execute instructions **to initialize a remainder of the computer memory** ...

Applicant respectfully submits that *Schelling* and *Bernhard, et al.* do not teach or suggest these limitations. (Amendments to claim 1 are supported in the specification at [0018] and [0019]. Amendments to claim 8 merely incorporate limitations from canceled claim 11.)

Schelling appears to disclose that the BIOS **releases a portion of memory as soon as it has tested that portion** (see [0031]-[0032]), so that the operating system can begin operating sooner (see [0031]). However, *Schelling* does not teach or suggest **using** any of the **retained portions** of memory **to initialize any other portion** of memory. Additionally, *Bernhard, et al.* appears to disclose the storing of configuration data, so that subsequent boot operations can be more rapidly performed (see [0028], [0035] and [0036]). However, like *Schelling*, *Bernhard, et al.* does not teach or suggest **using any portion of memory to initialize any other portion of memory**. Applicant respectfully submits, therefore, that independent **claims 1 and 8** are not anticipated by, are not obvious in view of, and are patentable over *Schelling* and *Bernhard, et al.* at least because the references do not teach or fairly suggest **using a portion of memory** to initialize a remainder of memory. Similarly, Applicant respectfully submits that dependent **claims 2-4, 12 and 13** are not anticipated by, are not obvious in view of, and are patentable over *Schelling* and *Bernhard, et al.* at least for the same reasons.

Applicant respectfully traverses the rejection of **claims 5, 9 and 10** under U.S.C. 103(a) as being unpatentable over the combination of *Schelling* and *Bernhard, et al.* and further in view of *Zimmer, et al.* **Claim 5** depends directly from independent claim 1, and **claims 9 and 10** depend either directly or indirectly from independent claim 8. As noted above, independent claims 1 and 8 are not

anticipated by, are not obvious in view of, and are patentable over *Schelling* and *Bernhard, et al.* Additionally, Applicant respectfully submits that *Zimmer, et al.* does not cure the deficiencies of *Schelling* and *Bernhard, et al.* Applicant respectfully submits, therefore, that dependent **claims 5, 9 and 10** are not anticipated by, are not obvious in view of, and are patentable over *Schelling, Bernhard, et al.* and *Zimmer, et al.* at least for the same reasons as are independent claims 1 and 8.

Applicant respectfully traverses the rejection of **claim 6** under U.S.C. 103(a) as being unpatentable over the combination of *Schelling* and *Bernhard, et al.* and further in view of *Johnson, et al.* **Claim 6** depends directly from independent claim 1. As noted above, independent claim 1 is not anticipated by, is not obvious in view of, and is patentable over *Schelling* and *Bernhard, et al.* Additionally, Applicant respectfully submits that *Johnson, et al.* does not cure the deficiencies of *Schelling* and *Bernhard, et al.* Applicant respectfully submits, therefore, that dependent **claim 6** is not anticipated by, is not obvious in view of, and is patentable over *Schelling, Bernhard, et al.* and *Johnson, et al.* at least for the same reasons as is independent claim 1.

Applicant respectfully traverses the rejection of **claims 18, 19 and 25** under U.S.C. 103(a) as being unpatentable over *Zimmer, et al.* in view of *Bernhard, et al.* **Claims 18 and 25** are independent. **Claim 19** depends from independent claim 18. Independent **claim 18** has been amended by the above amendments and recites (among other limitations):

> a **processor**;
> first and second memory controllers **separate** from the processor;
> ...
> firmware under control of which the **processor** generates configuration data that enables the first memory controller to use the **first** computer memory, saves the configuration data in the nonvolatile memory space, copies the configuration data to the first memory controller to initialize the first memory controller to use the **first** computer memory, and **uses the first computer memory** to initialize the second memory controller **to use the second computer memory**.

Additionally, independent **claim 25** has been amended by the above amendments and recites (among other limitations):

> a means, **separate** from the first and second controlling means, for generating configuration data that enables the first controlling means to use the **first** computer memory;
>
> ...
>
> a means, **separate** from the first and second controlling means, using stackless instructions upon a firmware initiated reset for copying the configuration data from the storing means to the first controlling means **to use the first computer memory**;
>
> ...
>
> a means, **separate** from the first and second controlling means, using stack-based instructions for initializing the second controlling means **to use the second computer memory**.

Applicant respectfully submits that *Zimmer, et al.* and *Bernhard, et al.* do not teach or suggest these limitations. (Amendments to claim 18 are supported in the specification at [0019], [0022] and [0023]. Amendments to claim 25 are supported in the specification at [0022] and [0023].)

Zimmer, et al. appears to disclose enabling the processor cache 14 to be **used** as a RAM **by the processor 10** prior to the availability of the system memory 25, so the system memory 25 can be more quickly initialized (see [0012]). The office action equates the execution core 12 and the cache 14 of the processor 10 with one of the claimed memory controllers and one of the claimed computer memories, respectively. If that were the case, then *Zimmer, et al.* does not teach or suggest memory controllers that are separate from the processor, as recited in the amended **claim 18**. As a consequence, *Zimmer, et al.* further does not teach or suggest using a computer memory that is associated with a memory controller that is **separate** from the processor to initialize a second memory controller to use a second computer memory, as recited in **claim 18**. Additionally, *Zimmer, et al.* does not teach or suggest controlling means that are **separate** from the data generating means, the copying means or the initializing means, as recited in the amended **claim 25**. As a consequence, *Zimmer, et al.* further does not teach or suggest using stack-based instructions in a computer memory that is used by a controlling means

that is **separate** from the data generating means, the copying means or the initializing means to initialize a second controlling means to use a second computer memory, as recited in **claim 25**. Additionally, *Bernhard, et al.* appears to disclose the storing of configuration data, so that subsequent boot operations can be more rapidly performed (see [0028], [0035] and [0036]). However, as noted above, *Bernhard, et al.* does not teach or suggest using any **portion** of memory to initialize any other **portion**, so *Bernhard, et al.* does not cure the deficiencies of *Zimmer, et al.* with respect to either **claim 18 or 25**. Applicant respectfully submits, therefore, that independent **claims 18 and 25** are not anticipated by, are not obvious in view of, and are patentable over *Zimmer, et al.* and *Bernhard, et al.* at least because the references do not teach or fairly suggest a processor (or the various claimed means) separate from the memory controllers (or controlling means) that performs the recited functions to initialize a computer memory and then to use that computer memory to initialize another computer memory. Similarly, Applicant respectfully submits that dependent **claim 19** is not anticipated by, is not obvious in view of, and is patentable over *Zimmer, et al.* and *Bernhard, et al.* at least for the same reasons.

Allowed and Allowable Claims:

Applicant thanks the Examiner for allowing **claim 14**. Applicant thanks the Examiner for indicating that **claims 17, 20, 23 and 24** would be allowable if rewritten. **Claim 23** has been rewritten as indicated. **Claim 24** depends from amended independent claim 23. **Claims 17 and 20** have not been amended into independent form, since their base claims (amended independent claims 16 and 18, respectively) are patentable over the cited references, as explained above. **Claim 7** also has not been amended, since its base claim 1 (and intervening claim 6) are patentable over the cited references, as explained above.

Conclusion:

For the reasons specifically discussed above, and others, it is believed that pending **claims 1-10, 12-20 and 23-25** define patentable subject matter.

Reconsideration of the previous rejections and objections as they might apply to the pending claims is therefore respectfully requested. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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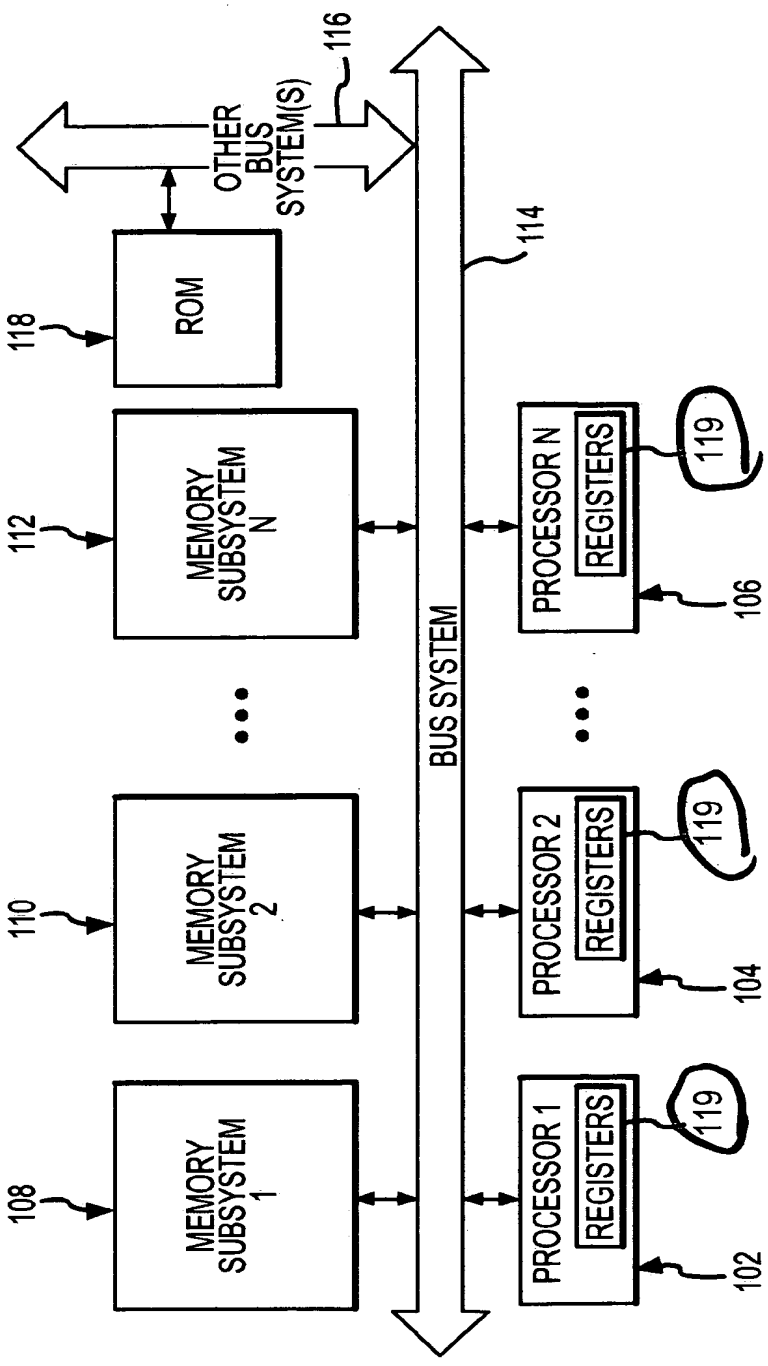

FIG.1